

Claims

1. A dispersion-compensated optical fiber wherein: in at least a wavelength which is selected from 1.53 μm to 1.63 μm , a bending loss is 5 dB/m or lower when it is would by a 20 mm bending diameter, a wavelength dispersion is -120 ps/nm/km or lower, an absolute value of the wavelength dispersion per a unit loss is 200 ps/nm/dB or higher, a cut-off wavelength for used length and used condition is 1.53 μm or lower, an outer diameter of a cladding is 80 μm to 100 μm , an outer diameter of coating is 160 μm to 200 μm , and a viscosity of a surface of a coating resin is 10gf/mm or lower.
2. A dispersion-compensated optical fiber according to Claim 1 wherein the viscosity of the surface of the coating resin of the dispersion-compensated optical fiber is 1gf/mm or lower.
3. A dispersion-compensated optical fiber according to Claim 1 or 2 wherein a Young's modulus of a first coating layer which is disposed on an outer periphery of the cladding is 0.15kgf/mm², a thickness of the first coating layer is 20 μm to 30 μm , a Young's modulus of a second coating layer which is disposed on an outer periphery of the first coating layer is 50kgf/mm², and a thickness of the second coating layer is 15 μm to 30 μm .
4. A dispersion-compensated optical fiber according to any one of Claim 1 to 3 comprising at least a center core section, a core which is formed by an intermediate core section and a ring core section, and a cladding which is disposed on its outer periphery, wherein a refractive index difference of the center core section with reference to the cladding is +1.6% to +2.6%, a refractive index difference of the intermediate core section with reference to the cladding is -0.30% to -1.4%; a refractive index difference of the ring core section with reference to the cladding is +0.30% to +1.0%; a ratio of a radius of the intermediate core section with

reference to a radius of the center core section is 1.5 to 3.5; a ratio of a radius of the intermediate core section with reference to a radius of the ring core section is 1.2 to 2.0, and a radius of the core is $4\mu\text{m}$ to $8\mu\text{m}$.

5 5. A dispersion-compensated optical fiber according to any one of Claim 1 to 3 comprising at least a core which is formed at least the center core section and the intermediate core section, and a cladding, wherein a refractive index difference of the center core section with reference to the cladding is +1.6% to +2.6%; a refractive index difference of the intermediate core section with reference to the cladding is -0.30% to -1.4%; a ratio of a radius of the intermediate core section with reference to a radius of the center core section is 1.5 to 3.5; a ratio of a radius of the intermediate core section with reference to a radius of the ring core section is 1.2 to 2.0, and a radius of the core is $4\mu\text{m}$ to $8\mu\text{m}$.

6. A dispersion-compensated optical fiber according to any one of Claim 1 to 5 wherein, 15 in at least a wavelength which is selected from $1.53\mu\text{m}$ to $1.57\mu\text{m}$, a quotient which is obtained by dividing the dispersion slope by the wavelength dispersion is 0.0026nm^{-1} to 0.010nm^{-1} .

7. A dispersion-compensated optical fiber according to any one of Claim 1 to 5 wherein, in at least a wavelength which is selected from $1.53\mu\text{m}$ to $1.57\mu\text{m}$, a quotient which is obtained 20 by dividing the dispersion slope by the wavelength dispersion is 0.0026nm^{-1} to 0.041nm^{-1} .

8. A dispersion-compensated optical fiber according to any one of Claim 1 to 5 wherein, in at least a wavelength which is selected from $1.57\mu\text{m}$ to $1.63\mu\text{m}$, a quotient which is obtained by dividing the dispersion slope by the wavelength dispersion is 0.0022nm^{-1} to 0.010nm^{-1} .

9. A dispersion-compensated optical fiber according to any one of Claim 1 to 5 wherein, in at least a wavelength which is selected from 1.57 μm to 1.63 μm , a quotient which is obtained by dividing the dispersion slope by the wavelength dispersion is 0.0022 nm^{-1} to 0.0035 nm^{-1} .